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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,282	07/22/2002	Guy Krippner	150070.402USPC	8714

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EXAMINER

WARD, PAUL V

ART UNIT PAPER NUMBER

1623

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,282

Applicant(s)

KRIPPNER ET AL.

Examiner

PAUL V WARD

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Objections

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The compound in claim 1 is described in a functional manner, i.e., no name, structure or formula is provided, and thus, the claims are seen to be indefinite because the applicant failed to particularly point out the identity of the compound. This failure to particularly point out the distinct identity of the compound of claim 1 renders the claim indefinite. Claims 2-13 are rejected because they depend from claim 1.

Claims 2-3 and 18 are indefinite because it uses abbreviations (e.g., HRV, Win 54954).

Claim 6 is indefinite because it recites the term "non-polymeric backbone" and further lists "oligomers" as representative example of a non-polymeric backbone applicant regards as the invention. Oligomers are polymeric.

Claim 7 is indefinite for reciting the term "sufficient". The term "sufficient" in claim is a relative term, which renders the claim indefinite. The term "sufficient" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 14-16 are indefinite for reciting the term "substituted". In the absence of a specific moieties intended to effectuate modification by "substation" or attachment to the chemical core claimed, the term "substituted" renders the claims in which it appears indefinite in all occurrences wherein applicant fails to articulate by chemical name, structural formula or sufficiently distinct functional language, the particular moieties applicant regards as those which will facilitate substitution, requisite to identifying the composition of matter claimed.

Claim 18 recites the limitation "biphenyl analogue". There is insufficient antecedent basis for this limitation in the claim.

Claim 19 is indefinite for reciting "(heel region)". It is unclear whether applicant means the heel region of the hydrophobic pocket or a separate region such as a region of the end of the capsid binding moiety. Correction is required.

Claims 20 and 23 are indefinite for reciting "capable". It is unclear whether the heel region forms a covalent bond with the backbone or core.

Claim 28 is indefinite for reciting "according to claim 27". Claim 27 was not an elected claim and for art purposes, claim 28 is interpreted to depend from claim 1, which is the only independent claim. Correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-23 & 28 are rejected under 35 U.S.C. 102(b) as being anticipated by McCarthy et al. (WO 99/29280).

Applicant claims a compound capable of binding to a picornavirus capsid comprising two or more capsid binding moieties. Applicant further claims that the capsid binding moiety is derived from a compound having the formula:



0 where Ar¹ and Ar² are optionally substituted aryl groups, which may be the same or different;

X and Y are independently selected from O, S, CO, C(O)O, CONR or NR, where R is hydrogen or C₁₋₆ alkyl; and

5

W is a divalent spacer group; and m and n are independently 0 or 1.

Additionally, applicant claims that the capsid binding moieties is a functional binding residue of HRV capsid binding compound, the moieties are covalently attached to a core and are able to bind within separate hydrophobic pockets. Finally, applicant claims a method for treating a picornavirus by administering the compound.

McCarthy teaches a compound capable of binding a picornavirus capsid, including HRV, comprising two or more capsid binding moieties. (See page. 5-6). On

Art Unit: 1623

page 6, line 19, and continuing on pages 7—8, McCarthy discloses a compound having a formula which includes two optionally substituted aryl groups, X and Y groups wherein X and Y are selected from S or O, and a divalent spacer group W. (See pages 7-8 and figures 1-4). Since McCarthy teaches the same compound, applicant claims are anticipated, and thus, rejected under 35 U.S.C. 102(b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCarthy in view of Tsang (wo 99/29908).

As set forth supra, McCarthy teaches a compound capable of binding a picornavirus capsid, including HRV, comprising two or more capsid binding moieties. (See page. 5-6). On page 6, line 19, and continuing on pages 7—8, McCarthy discloses a compound having a formula which includes two optionally substituted aryl

Art Unit: 1623

groups, X and Y groups wherein X and Y are selected from S or O, and a divalent spacer group W. (See pages 7-8 and figures 1-4).

McCarthy does not explicitly teach that the viral site contained within the viral capsid is a conserved hydrophobic pocket at the core, which allows for a functional binding residue to bind within the capsid.

Tsang teaches compounds for viral capsid binding activity. (See abstract). On page 4, Tsang discloses that anti-picornaviral compounds bind to the conserved hydrophobic pocket at the core, allowing binding within the hydrophobic capsid pocket despite being attached to another chemical entity, which provides tight binding of a therapeutic agent.

It would have been obvious to one of ordinary skill in the art to use the compound capable of binding the picornavirus capsid, as per McCarthy, by including a functional binding residue to bind to the hydrophobic pocket, as suggested by Tsang, with a reasonable expectation of success. The motivation to do so is provided by Tsang who teach the usefulness of including a residue to ensure tight binding and the teaching of McCarthy of a compound capable of binding a picornavirus capsid which includes a spacer monomer, wherein the two aromatic monomers are covalently linked through a spacer. Thus, the combined references teach and suggest all of the claim limitations. Therefore, the claimed invention as a whole is obvious over the combined teachings of the prior art.

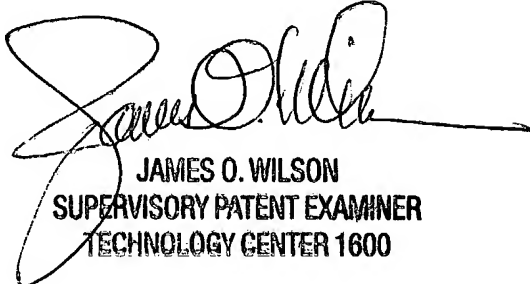
Conclusion

Claims 1-23 and 28 are pending. Claims 1-23 and 28 are rejected. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL V WARD whose telephone number is 571-272-2909. The examiner can normally be reached on M-F 8 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O Wilson can be reached on 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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